<u>**AMENDMENTS TO THE CLAIMS:**</u>

This listing of claims will replace all prior versions, and listings, of claims in the application:

<u>**Listing Of Claims:**</u>

Please amend the claims as follows:

1.   (Currently Amended) A system for offloading an input/output (I/O) task from a first computer to a second computer, <u>the system</u> comprising:

a client running on the first computer;

a server running on the second computer; and

at least one remote direct memory access (RDMA) channel linking the first computer and the second computer, wherein the first computer and the second computer communicate in accordance with a protocol comprising:

a network discovery phase, wherein the network discovery phase is configured to:

create, by the client, an RDMA connection to the server over a shared RDMA-capable provider; [[and]]

<u>mutually</u> authenticate, by the client and the server, the RDMA connection~~, wherein the network discovery phase configured to authenticate the RDMA connection is configured to:~~

send, by the server, a credit request message, wherein the credit request message comprises one of the following: <u>a negative value indicating</u> [[the]] <u>a</u> number of credits <u>that</u> the client [[have]] <u>has</u> to give up and <u>a positive value indicating</u> [[the]] <u>a</u> number of <u>the</u> credits that the server has newly allocated for

use by the client, <u>the credits corresponding to I/O requests the client is</u>

<u>attempting to offload to the server</u>;

receive, by the client, the credit request message <u>indicating a buffer</u>

<u>status of the server, the buffer status corresponding to an availability of the</u>

<u>server to process the I/O requests that the client is attempting to offload to the</u>

<u>server</u>; <u>and</u>

in response to the client receiving the credit request message, send, from

the client to the server, one of the following:

~~one message~~ <u>a first indication,</u> if an information field in the

credit request message [[is]] <u>comprises the</u> positive <u>value,</u> wherein the

<u>first indication notifies the server of</u> ~~positive credit request message~~

~~comprises~~ <u>at least one of the newly allocated</u> credits that the <u>client has</u>

<u>used</u> ~~server has newly allocated for use by the client~~, and

at least one ~~message~~ <u>second indication,</u> if the information field in

the credit request message [[is]] <u>comprises the</u> negative <u>value,</u> wherein

<u>each second indication corresponds to each credit that the client has</u>

<u>released</u> ~~the negative credit request message comprises one message for~~

~~each credit that the client has to give up~~; and

~~in response to receiving the message from the client, send by the server,~~

~~a response for each message received from the client, and~~

an I/O processing phase <u>configured to process the I/O requests offloaded to the</u>

<u>server</u>, wherein read operations <u>of the I/O phase</u> are implemented using RDMA

<u>operations</u> and write operations <u>of the I/O phase</u> are implemented using send

operations, wherein the write operations are not implemented using <u>the</u> RDMA

<u>operations</u>.

2.   (Canceled)

3.   (Currently Amended) The system of claim 1 wherein the protocol is used in

association with ~~a second~~ <u>another</u> network protocol.

4.   (Currently Amended) The system of claim 3 wherein the ~~second~~ <u>other</u> protocol

is a server message block (SMB).

5.   (Currently Amended) The system of claim 3 wherein the ~~second~~ <u>other</u> protocol

is a common internet file system (CIFS).

6.   (Currently Amended) A computer-readable medium storing computer-

executable instructions and computer-readable data comprising a computer program product

for use in a system for offloading an input/output (I/O) task from a first computer to a second

computer, the system comprising:

at least one remote direct memory access (RDMA) channel linking the first computer

and the second computer, wherein the first computer and the second computer communicate in

accordance with a protocol comprising:

a network discovery phase, wherein the network discovery phase is configured

to:

create, by the client, an RDMA connection to the server over a shared

RDMA-capable provider; [[and]]

mutually authenticate, by the client and the server, the RDMA

connection, ~~wherein the network discovery phase configured to authenticate the~~

~~RDMA connection is configured to:~~

send, by the server, a credit request message, wherein the credit request

message comprises one of the following: a negative value indicating [[the]] a

number of credits that the client [[have]] has to give up and a positive value

indicating [[the]] a number of the credits that the server has newly allocated for

use by the client, the credits corresponding to I/O requests the client is

attempting to offload to the server;

receive, by the client, the credit request message indicating a buffer

status of the server, the buffer status corresponding to an availability of the

server to process the I/O requests that the client is attempting to offload to the

server; and

in response to the client receiving the credit request message, send, from

the client to the server, one of the following:

~~one message~~ a first indication, if an information field in the

credit request message [[is]] comprises the positive value, wherein the

first indication notifies the server of ~~positive credit request message~~

~~comprises~~ at least one of the newly allocated credits that the client has

used ~~server has newly allocated for use by the client~~, and

at least one ~~message~~ <u>second indication,</u> if the information field in

the credit request message [[is]] <u>comprises the</u> negative <u>value</u>, wherein

<u>each second indication signifies a release of a single credit by the client</u>

~~the negative credit request message comprises one message for each~~

~~credit that the client has to give up~~; and

~~in response to receiving the message from the client, send by the server,~~

~~a response for each message received from the client, and~~

an I/O processing phase <u>configured to process the I/O requests offloaded to the</u>

<u>server,</u> wherein read operations <u>of the I/O phase</u> are implemented using RDMA

<u>operations</u> and write operations <u>of the I/O phase</u> are implemented using send

operations, wherein the write operations are not implemented using <u>the</u> RDMA

<u>operations</u>.

7.   (Currently Amended) A method for offloading an input/output (I/O) task from

a first computer to a second computer, <u>the method</u> comprising:

discovering, by a client on the first computer and a server on the second computer, at

least one shared remote direct memory access (RDMA) capable provider, wherein discovering

comprises:

creating, by the client, an RDMA connection to the server over the at least one

shared RDMA-capable provider; [[and]]

<u>mutually</u> authenticating, by the client and the server, the RDMA connection~~,~~

~~wherein authenticating the RDMA connection comprises~~:

sending, by the server, a credit request message, wherein the credit request message comprises one of the following: <u>a negative value indicating</u> [[the]] <u>a</u> number of credits <u>that</u> the client [[have]] <u>has</u> to give up and <u>a positive value indicating</u> [[the]] <u>a</u> number of <u>the</u> credits that the server has newly allocated for use by the client<u>, the credits corresponding to I/O requests the client is attempting to offload to the server</u>

receiving, by the client, the credit request message<u> indicating a buffer status of the server, the buffer status corresponding to an availability of the server to process the I/O requests that the client is attempting to offload to the server,</u>

in response to the client receiving the credit request message, sending, from the client to the server, one of the following:

~~one message~~ <u>a first indication,</u> if an information field in the credit request message [[is]] <u>comprises the</u> positive <u>value</u>, wherein the <u>first indication notifies the server of</u> ~~positive credit request message comprises~~ <u>at least one of the newly allocated</u> credits that the <u>client has used</u> ~~server has newly allocated for use by the client~~, and

at least one ~~message~~ <u>second indication,</u> if the information field in the credit request message [[is]] <u>comprises the</u> negative <u>value</u>, wherein <u>each second indication corresponds to each credit that the client has released</u> ~~the negative credit request message comprises one message for each credit that the client has to give up~~; and

~~in response to receiving the message from the client, send by the server, a response for each message received from the client, and~~

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posting, by the client, [[an]] the I/O processing requests offloaded from the client

request for completion by the server on the second computer, wherein read operations are

implemented using RDMA operations and write operations are implemented using send

operations, wherein the write operations are not implemented using the RDMA operations.

8.   (Previously Presented) The method of claim 7 wherein the discovering at least

one shared RDMA-capable provider further comprises:

obtaining, by the client, a server request resume key from the server;

opening, by the client, a pipe to the server;

sending, by the client over the pipe, a negotiate request; and

sending, by the server over the pipe, a negotiate response including a minimal list of

common providers.

9.   (Canceled)

10.   (Currently Amended) The method of claim 7, further comprising:

registering, by the client, one or more files at least one file for use with the server over

the RDMA connection.

11.   (Previously Presented) The method of claim 10 wherein the registering at least

one file comprises:

sending, by the client to the server, a register file message; and

sending, by the server to the client, a register file completion message.

12.   (Previously Presented) The method of claim 7, wherein the authenticating the RDMA connection further comprises:

sending, by the client, an authenticate request message to the server, the authenticate request message including a key;

if the key matches a previous key sent by the server to the client, sending, by the server, an authenticate response message to the client.

13.   (Currently Amended) The method of claim 12 wherein sending, by the server, the authenticate response message to the client comprises sending, by the server, the authenticate response message when the previous key is a key contained in a negotiate response message sent by the server to the client.

14.   (Original) The method of claim 12, further comprising:

sending, by the server to the client, a status response message to complete the authenticating.

15.   (Original) The method of claim 7 wherein the posting the I/O processing request comprises sending, by the client, one of (a) a close request, (b) a cancel request, (c) a read request, (d) a write request, (e) a vectored read request, and (f) a vectored write request.

16.   (Currently Amended) The method of claim 15, further comprising:

completing, by the server, the read request and the vectored read request by sending

data using RDMA write operations; and

completing, by the server, the write request and the vectored write request by sending

data using the ~~normal~~ send operations.

17.   (Currently Amended) The method of claim 15 wherein posting the I/O

processing request comprises sending, by the client, the vectored write request, the vectored

write request including ~~includes~~ a collapse flag in a header of the request.

18.   (Original) The method of claim 7 wherein posting the I/O processing request

further includes indicating whether the completion by the server should be in polling mode.

19.   (Original) The method of claim 18 wherein the indicating whether the

completion should be in polling mode comprises indicating that the completion should not be

in polling mode by setting an interrupt flag in a header of the I/O processing request.

20.   (Original) The method of claim 18, further comprising:

if the client indicates that the completion should not be in polling mode, completing, by

the server, the I/O processing request by sending a status block to the first computer by way of

RDMA transfer.

21.   (Original) The method of claim 18, further comprising:

if the client indicates that the completion should be in polling mode, and the client has sent an interrupt request message to the server, sending, by the server to the client, an interrupt response message by way of an ordinary send.

22.   (Original) The method of claim 7 wherein posting the I/O processing request further includes specifying a number of credits in a header of the request.

23.   (Currently Amended) A computer-readable media storing computer-executable instructions for implementing a method for offloading an input/output (I/O) task from a first computer to a second computer, the method executed by the computer-executable instructions comprising:

discovering, by a client on the first computer and a server on the second computer, at least one shared remote direct memory access (RDMA) capable provider[[,]];

wherein requesting, by the first computer, requests a server request resume key; [[and]]

passing, by the second computer, passes the server request resume key as an authentication mechanism, wherein requesting and passing the request resume key comprises:

creating, by the client, an RDMA connection to the server over the at least one shared RDMA-capable provider; [[and]]

mutually authenticating, by the client and the server, the RDMA connection, wherein authenticating the RDMA connection comprises:

sending, by the server, a credit request message, wherein the credit request message comprises one of the following: a negative value indicating [[the]] a number of credits that the client [[have]] has to give up and a positive value indicating [[the]] a

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number of <u>the</u> credits that the server has newly allocated for use by the client<u>, the</u>

<u>credits corresponding to I/O requests the client is attempting to offload to the server</u>

receiving, by the client, the credit request message <u>indicating a buffer status of</u>

<u>the server, the buffer status corresponding to an availability of the server to process the</u>

<u>I/O requests that the client is attempting to offload to the server</u>,

in response to the client receiving the credit request message, sending, from the

client to the server, one of the following:

~~one message~~ <u>a first indication,</u> if an information field in the credit

request message [[is]] <u>comprises the</u> positive <u>value</u>, wherein the <u>first indication</u>

<u>notifies the server of</u> ~~positive credit request message comprises~~ <u>at least one of</u>

<u>the newly allocated</u> credits that the <u>client has used</u> ~~server has newly allocated~~

~~for use by the client~~, and

at least one ~~message~~ <u>second indication,</u> if the information field in the

credit request message [[is]] <u>comprises the</u> negative <u>value</u>, wherein <u>each second</u>

<u>indication signifies a release of a single credit by the client</u> ~~the negative credit~~

~~request message comprises one message for each credit that the client has to~~

~~give up~~; and

~~in response to receiving the message from the client, send by the server,~~

~~a response for each message received from the client, and~~

posting, by the client, [[an]] <u>the</u> I/O processing <u>requests offloaded from the client</u>

~~request~~ for completion by the server on the second computer, wherein read operations are

implemented using RDMA <u>operations</u> and write operations are implemented using send

operations, wherein the write operations are not implemented using <u>the</u> RDMA <u>operations</u>.

24.   (Withdrawn)